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The Northern Front in the Technological Cold War

Finland and East-West Trade in the 1970s and 1980s

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Introduction

"Modern armies march on electronics," *The Economist* noted in April 1984, arguing that weapons were becoming less important than the computers, communications equipment, and signaling devices that controlled actual armaments.[1] U.S. authorities, especially at the Department of Defense, saw the situation similarly and tried to build barriers to stop high technology from flowing from Western countries to the Soviet bloc. Finland, a small Nordic country, was one of the Soviet Union's most important non-Communist trading partners. Therefore, U.S. authorities tried to integrate it into the Western embargo. This article explores how the superpowers waged a technological Cold War in Northern Europe in the 1970s and 1980s and analyzes how the Finnish government and Finnish companies reacted to these outside pressures. How could the Finns maintain extensive technological links with the West while selling high-technology goods to the Soviet Union?

U.S. officials were successful in their efforts. That Finland, a country vulnerable to Soviet pressure and sharing a long border with its powerful neighbor, was successfully incorporated into the Western embargo underlines the ability of the United States to control international trade during the Cold War. The Finnish case also shows that determined small countries were not necessarily helpless actors in the world but could protect their political and economic interests. The Finns managed to get the best of both worlds: expansion of Finnish-Soviet trade made the small country an "East-West

1. "The High-Tech Trail," *The Economist*, 21 April 1984, p. 10.

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trading giant," but it was also able to strengthen its trading links with the West.[2]

There is little published research on Finland's role in the Western Cold War technology embargo. Hendrik Roodbeen, in his detailed 1992 work on the role of small countries in the Western Cold War embargo, writes that

> [a]lthough none of the neutral countries have given much publicity to their problems regarding the transfer of technology, they have been generous as compared with Finland. The great sensitivity of the problem has been the result of the special relationship with the USSR.[3]

Michael Mastanduno offers a similar view in his well-known book (also from 1992) on East-West Trade: "Given its geographical proximity to and political relationship with the Soviet Union, Finnish cooperation with the technology embargo is a delicate matter that has rarely been publicly discussed."[4]

Since the early 1990s, the situation has improved considerably. A scholar can now gain access to many previously closed archival collections and other sources that reveal important information on Finnish policy toward the Coordinating Committee for Multilateral Export Controls (CoCom), the Western export control system during the Cold War decades. Although many important collections are still closed to researchers, it is possible to construct a reasonably coherent picture of Finnish activities based on available archival material, interviews, press reports, and published research. From this picture one can conclude that, despite the Finnish-Soviet "special relationship"—a polite way of saying that Finland was suspected to be under Soviet influence or at least forced to refrain from any actions that might annoy the Communist superpower—the Finns formed close relationships with Western export control authorities.

As a small non-Communist, capitalist country located next to the vast Soviet state, Finland had to tread carefully in the Cold War. Although the Finns had managed to avoid Soviet occupation during the Second World

2. Sari Autio-Sarasmo, "Soviet Economic Modernisation and Transferring Technologies from the West," in Markku Kangaspuro and Jeremy Smith, eds., *Modernisation in Russia since 1900* (Helsinki: Finnish Literature Society, 2006), p. 117.

3. Hendrik Roodbeen, "Trading the Jewel of Great Value: The Participation of the Netherlands, Belgium, Switzerland and Austria in the Western Strategic Embargo," Ph.D. Diss.: Rijksuniversiteit te Leiden, 1992, p. 84.

4. Michael Mastanduno, *Economic Containment: CoCom and the Politics of East-West Trade* (Ithaca, NY: Cornell University Press, 1992), p. 292. See also Paul Luif's comment, "Not much is known about the controls of high-tech trade in Finland." Paul Luif, "Strategic Embargoes and European Neutrals: The Cases of Austria and Sweden," in Vilho Harle, ed., *Tapri Yearbook 1986: Challenges and Responses in European Security* (Aldershot, UK: Avebury, 1986), p. 188.

War, Finnish political leaders—in particular, President J. K. Paasikivi (1946–1956)—recognized that the country would survive only if it established and maintained cordial relations with the Communist superpower. Overtly anti-Soviet actions could provoke Soviet leaders to try to occupy the country, as indeed they had tried to do twice during the Second World War. Furthermore, Finland had little hope that Western countries would guarantee the security of a country deemed by Moscow to be within the Soviet sphere of influence—a country adjoining Leningrad, the USSR's second largest city.[5]

During the Cold War, Finnish authorities stressed in all available public forums their determination to remain neutral in the global East-West confrontation. However, Finnish efforts to maintain good relations with the Soviet Union, and signs that Moscow had considerable influence in Finnish public life, aroused Western suspicions that Finnish independence was gradually eroding. In the West, the concept of "Finlandization" was developed to describe a nominally independent small country whose freedom was curtailed by a larger one. Walter Laqueur, an American historian and political commentator, stated in 1979 that

> Finland is a neutral, but not vis-à-vis the Soviet Union towards which it has special obligations. It must not oppose any major Soviet foreign political initiative nor enter any commitments without Soviet approval, and it is expected to give active support to some aspects of Soviet foreign policy.[6]

However, recent research on Cold War history indicates, as the editors of a book on interactions between East and West suggest, that "the smaller states exerted a remarkable influence on the development of the Cold War by constantly searching, testing, challenging, and pushing the limits of their elbow room, and hence the boundaries of the possible."[7] Finnish authorities' unwillingness to criticize Soviet actions sometimes frustrated British and U.S. officials, but usually they recognized that Finnish behavior was mainly due to geopolitical considerations. Sir James Cable, the British Ambassador to Helsinki, wrote in his valedictory dispatch in May 1980 that "the purpose of

5. Niklas Jensen-Eriksen, "Market, Competitor or Battlefield? British Foreign Economic Policy, Finland and the Cold War, 1950–1970," Ph.D. Thesis, London School of Economics and Political Science, 2004, pp. 28–29.

6. Walter Laqueur, *A Continent Astray: Europe, 1970–1978* (New York: Oxford University Press, 1979), p. 223.

7. Sari Autio-Sarasmo and Katalin Miklóssy, "Introduction: The Cold War from a New Perspective," in Sari Autio-Sarasmo and Katalin Miklóssy, eds., *Reassessing Cold War Europe* (London: Routledge, 2010), p. 13. See also, for example, Tony Smith, "New Bottles for New Wine: A Pericentric Framework for the Study of the Cold War," *Diplomatic History*, Vol. 24, No. 4 (Fall 2000), pp. 567–591.

Finnish policy is the maintenance of Finnish independence: accommodation with the Soviet Union only a tactical expedient."[8]

In this article, Finland is examined not simply as a target of U.S. or Soviet polices but as an actor in its own right—or, rather, as a group of government and private actors who tried to promote their interests amid Cold War pressures. The article seeks to find out why and how the supposedly "Finlandized" country largely abided by the Western embargo. The Finns claimed to have acted as they did because otherwise the Western countries, especially the United States, would have retaliated. Yet this was not the whole story. The Finns were not simply responding to Western economic pressure but were also eager to strengthen links with the West and hence reduce their dependency on the Soviet Union.

High-Technology Exports and the Cold War

As Charles S. Maier has argued, the Cold War "began in an age when coal and steel were the base of industrial power [but] continued into an era when these underlying elements—and the industrial structures based on them—no longer seemed crucial for progress."[9] The traditional Western industrial areas, like the Ruhr in West Germany, began to rust, losing their relative significance as new fields of enterprise were born. Although CoCom had from the beginning controlled the flow of technological innovations to Communist countries, the contents of the original export control lists (1949–1950) had in many ways resembled the embargoes that Allied powers had instituted during the First and Second World Wars. The Cold War lists were not as extensive as those of "hot" World Wars, but the United States and its allies had nevertheless tried to stop or at least limit the flow to Communist countries of industrial goods and raw materials that could have military implications.[10] In the Finnish context, this meant that the United States had taken a close

8. "Finland: Valedictory Dispatch," 8 May 1980, in FCO33/4487, The National Archives of the United Kingdom (TNAUK), London.

9. Charles S. Maier, "The World Economy and the Cold War in the Middle of the Twentieth Century," in Melvyn P. Leffler and Odd Arne Westad, eds., *The Cambridge History of the Cold War*, Vol. 1: *Origins* (Cambridge, UK: Cambridge University Press, 2010), pp. 53–54.

10. Many scholars have looked at the history of CoCom. See, for example, Alan P. Dobson, *US Economic Statecraft for Survival 1933–1991: Of Sanctions, Embargoes and Economic Warfare* (London: Routledge, 2002); Ian Jackson, *The Economic Cold War: America, Britain and East-West Trade, 1948–1963* (Basingstoke, UK: Palgrave, 2001); and Tor Egil Førland, *Cold Economic Warfare: CoCom and the Forging of Strategic Export Controls, 1948–1954* (Dordrecht, NL: Republic of Letters Publishing, 2009).

interest in the Nordic country's transfer of items such as cable, ships, and copper to the Soviet Union.[11]

Expansion of world trade, periods of détente in East-West trade, and, finally, the so-called Third Industrial Revolution changed the nature of the Western embargo. Over time, the control of sales of traditional industrial goods and raw materials seemed less and less important, and most such goods were removed from CoCom lists. The first extensive cuts were made in 1954, and other major deletions followed in 1958 and the 1960s. However, high-technology items were not removed, and new ones were added as Western enterprises and research institutes developed new products, often in fields in which the Soviet Union was lagging behind. "By the 1980s, . . . technology and information had become the Soviet Achilles heel," David Reynolds writes.[12]

By the mid-1970s, many U.S. policymakers had recognized that the old export control system against Communist countries needed even more thorough renovation. In 1976, a task force set up by the U.S. Department of Defense and led by J. Fred Bucy, Jr., the executive vice president of Texas Instruments, pointed out that, existing regulations focused on controlling products' sales, whereas it would be more useful to emphasize the control of design and manufacturing know-how. The task force also argued that the United States should adopt a tougher attitude toward allies and neutral countries that re-exported technology to the East. They should not get permission to buy strategic technology from the United States if their governments allowed it to be resold to Communist countries.[13]

If the report's recommendations had been implemented, the U.S. export control system would have become "leaner and meaner," removing controls on some sections of trade while imposing even stricter sanctions on others. Neutral states would have been treated particularly harshly. The task force felt

11. See Niklas Jensen-Eriksen, "CoCom and Neutrality: Western Export Control Policies, Finland and the Cold War, 1949–58," in Autio-Sarasmo and Miklóssy, eds., *Reassessing Cold War Europe*, pp. 49–65.

12. David Reynolds, "Science, Technology, and the Cold War," in Melvyn P. Leffler and Odd Arne Westad, eds., *The Cambridge History of the Cold War*, Vol. 3: *Endings* (Cambridge, UK: Cambridge University Press, 2010), p. 378.

13. Mastanduno, *Economic Containment*, p. 189; and U.S. Department of Defense, *An Analysis of Export Control of US Technology—A DoD Perspective, a Report of the Defense Science Board Task Force on Export of US Technology* (Washington, DC: Office of the Director of Defense, Research and Engineering, 1976). See also J. Fred Bucy, "Technology Transfer and East-West Trade: A Reappraisal," *International Security*, Vol. 5, No. 3 (Winter 1980–1981), pp. 132–151; and J. Fred Bucy, "On Strategic Technology Transfer to the Soviet Union," *International Security*, Vol. 1, No. 4 (Spring 1977), pp. 25–43.

that the United States should sell to neutral countries only that technology it was also willing to sell to the Soviet Union.[14]

"The Bucy report was not the genesis of thinking but resulted from a growing concern over technology sales," a U.S. official explained to his British colleagues.[15] Yet, in the era of détente, it was hard to win enough support for tighter restrictions. Many key figures within President Jimmy Carter's administration and the U.S. Congress opposed measures that could harm U.S. exports and relations with key allies and undermine East-West détente. In the late 1970s, the Bucy report had only limited impact on U.S. policies, but in the following decade it "proved to be among the most influential documents produced on U.S. export control policy."[16]

The entry of Soviet troops into Afghanistan in December 1979 put an end to the relative calm in East-West trade and political relations. "Recent Soviet actions have ended the euphoria of the détente era," Bucy noted, and rehearsed his group's previous arguments.[17] The Carter administration responded to the invasion by introducing new economic sanctions intended to "convince the Soviets that they have made a serious mistake."[18] Some of these were imposed on high-technology exports.

The U.S. administration under Ronald Reagan, who took office in January 1981, was even more eager to limit trade with the Soviet Union. Secretary of Defense Caspar Weinberger declared: "Selling them our valuable technology upon which we have historically based much of our security is shortsightedness raised to the level of a crime."[19] The administration strengthened and modified U.S. controls and also gave increasing attention to the policies of other countries. Officials in Washington believed that U.S. technology sold to Western Europe was being diverted to the Soviet bloc through U.S. allies and neutral countries. Furthermore, neutral European countries, like Austria and Finland, traded more extensively with the Soviet-bloc countries than the United States did. U.S.-Soviet trade was limited and consisted mainly of agricultural sales. If the Reagan administration wanted to stem the flow of

14. U.S. Department of Defense, *An Analysis of Export Control of US Technology*.

15. "Anglo/US Bilaterals on CoCom: London 2/3 March 1977: Record of Meeting," in FCO69/590, TNAUK.

16. Mastanduno, *Economic Containment*, p. 187.

17. Bucy, "Technology Transfer and East-West Trade," p. 132.

18. Carter to Margaret Thatcher, with handwritten postscript, 13 March 1980, in PREM19/137, TNAUK.

19. Leslie H. Gelb, "Weinberger Says Soviet Weapons Are Aided by Western Technology," *The New York Times*, 22 May 1982, p. 5.

technology from the West to the Communist bloc, it had to find a way to limit intra-European trade.[20]

Buying and Stealing from Finland

When the Second World War ended in 1945, Finland was still a semi-agricultural country that sold mainly timber, pulp, paper, ships, agricultural goods, and some machines to foreign countries. By the beginning of the 1980s, the development of the Finnish economy had led to a considerable diversification of exports.[21] Most Finnish products were sold to non-Communist European countries such as the United Kingdom, West Germany, and Sweden, but after the Second World War, Finland and the Soviet Union had formed strong trading links. Sales to the Soviet Union were highly profitable for many Finnish companies and helped them to develop new products. In addition to the traditional goods of engineering and forest industries, the Finns learned to produce high-technology products such as electronics and telecommunications equipment. In 1981, Finland was fifth, after West Germany, Japan, France, and Italy, on the list of most-important exporters of high technology to the Soviet Union.[22] A Finnish company, Nokia, was probably the foremost Western supplier of telecommunications equipment to the Soviet Union.[23] Some of the technologies sold by Finland to the Soviet Union had clear military significance, including roll-on/roll-off technology that was adapted to an amphibious warship.[24]

From the late 1940s, the Soviet Union had been able to buy some Finnish-made strategic goods, such as tankers and cable. However, Finnish authorities, who were eager to protect the country's vital Western trade relations, had tried to ensure that strategic items imported from the West would not be

20. Alan P. Dobson, "The Reagan Administration, Economic Warfare, and Starting to Close Down the Cold War," *Diplomatic History*, Vol. 29, No. 3 (June 2005), p. 550.

21. For Finnish business and economic history in the period (in English), see, in particular, Jari Ojala, Jari Eloranta, and Jukka Jalava, eds., *The Road to Prosperity: An Economic History of Finland* (Helsinki: Suomalaisen Kirjallisuuden Seura, 2006); and Susanna Fellman et al., eds., *Creating Nordic Capitalism: The Business History of a Competitive Periphery* (Basingstoke, UK: Palgrave Macmillan, 2008).

22. Luif, "Strategic Embargoes and European Neutrals," p. 181; and Kari Ketola and Hannu Eskelinen, interview by Aaro Sahari and Saara Matala, 26 March 2014.

23. Robert W. Campbell, *Soviet and Post-Soviet Telecommunications: An Industry under Reform* (Boulder, CO: Westview Press, 1995), p. 73.

24. Ingemar Dörfer, "The European Neutrals in the Strategy of the Reagan Administration," in Bengt Sundelius, ed., *The Neutral Democracies and the New Cold War* (Boulder, CO: Westview Press, 1987), p. 193.

re-exported to the Communist countries. They had inconspicuous ways to stop such sales. Trade was based on official intergovernmental agreements, which contained lists of import and export quotas. A company wishing to export or re-export anything to the Soviet Union had to acquire permission from Finnish authorities. Furthermore, the Bank of Finland, the country's central bank, controlled all financial transactions and converted Soviet rubles to Finnish currency. As Finnish officials explained to the U.S. embassy in 1986, the "purpose of the Finnish export control system is to follow the fulfilment of the annual export quotas and the degree of the domestic content of the exports"; that is, the Finns sought to ensure both their country's balance of payments and high levels of employment. Yet, crucially, the system could also be used in obstructing attempts to sell CoCom-listed goods via Finland to Soviet-bloc countries.[25] Politically, the system was highly convenient for the Finnish government.

However, the Soviet Union tried not only to buy Western technology but also to steal it. The USSR had a long tradition in the field of espionage, and from the 1960s onward the First Main Directorate (foreign intelligence) of the Soviet Committee on State Security (KGB), which was responsible for foreign operations, stepped up its efforts to collect scientific and technological (S&T) information from the West. In 1963, an existing S&T subsection of Soviet foreign intelligence became Directorate T, which received acquisition tasks from the Soviet Military-Industrial Commission. This organ, which coordinated efforts to supply the Soviet armed forces with modern equipment, was above all interested in U.S. military technology. Therefore, the United States became the main target of Soviet S&T espionage.[26]

Yet, Directorate T, as well as Soviet military intelligence, which was involved in similar exercises, recognized that one could also acquire U.S. technology from other non-Communist countries, including Finland. In 1975, "Line X," the operational section that did the actual work abroad, had six officers stationed in the KGB residency in Helsinki, a greater number than in some of the other small countries but fewer than in London (nine) or Paris

25. Jensen-Eriksen, "CoCom and Neutrality"; Kari Nars, *Mahtimiesten Matkassa* (Helsinki: Kustannusosakeyhtiö Tammi, 2002), pp. 142–143; and "Finnish Export Control," memorandum attached to Leif Fagernäs, Finnish Ministry for Foreign Affairs, to Kenneth L. Norton, U.S. Embassy, 13 August 1986, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä. 2. Keskustelut toukok.1986—tammik. 1987, Ulkoasiainministeriön arkisto (Archives of the Ministry for Foreign Affairs), Helsinki, Finland (UM).

26. Christopher Andrew and Vasili Mitrokhin, *The Mitrokhin Archive: The KGB in Europe and the West* (London: Penguin Books, 2000), p. 243.

(22).[27] At first, the Line X officers in Finland focused their activities on foreign technicians working in the country. This reflected both the technological level of Finland and the fact that these officers, unlike their colleagues collecting information on Finnish political life, did not usually speak Finnish.[28]

The KGB hoped that it could acquire from Finland the types of technology that Western countries would never sell directly to a Communist country. Yet it could not operate freely in Finland. The Finnish security police, Suojelupoliisi (Supo), regarded the KGB as its "enemy" and therefore cooperated with U.S. and British intelligence agencies, as Kimmo Rentola has shown. Supo noticed in the mid-1970s that the KGB had launched an intensive effort to obtain new Western technology. An internal Supo memorandum from 1979 suggested that "substantial amounts" (*runsaita määriä*) of embargoed Western technology traveled via Finland to the Soviet Union. Supo feared that these activities would harm Finland's economic interests and its relations with Western countries. The Soviet Union had found willing partners in Finland, a few of whom were caught by Supo and subsequently sentenced to prison. Over the next decade, Soviet officials stepped up their efforts even more. They managed to acquire more technology but also caused inadvertent damage to their country's reputation, as the intensive attempts to steal foreign technology indicated that the Soviet superpower was in fact a backward country that desperately needed it.[29]

The KGB was also interested in Finnish technology, including research done at the Helsinki University of Technology and Valtion Teknillinen Tutkimuskeskus (State Technical Research Center). By the beginning of the 1980s, S&T espionage had become the most important field of Soviet intelligence activities in Finland. Supo continued to battle against these activities throughout the 1980s, ordering caught Line X operatives to leave the country. These issues were always handled without publicity.[30]

The highly coordinated nature of Finnish capitalism made Supo's work considerably easier. The Finnish companies selling to the Soviet Union were, as a Finnish diplomat explained in 1984, usually large and well-known

27. Ibid., pp. 246, 884.

28. Kimmo Rentola, "Suojelupoliisi Kylmässä Sodassa 1949–1991," in Matti Simola, ed., *Ratakatu 12: Suojelupoliisi 1949–2009* (Helsinki: Werner Söderström Osakeyhtiö, 2009), p. 104.

29. Ibid., pp. 103–110; and Memorandum from Arvo Koli, 18 January 1979, in Amp XXIII A 1; Suojelupoliisin katsaus N:o 1/15.4.1980; and Suojelupoliisin katsaus N:o 3/31.10.1981, in Amp XXII D 6, Archives of Suojelupoliisi (Supo), Helsinki.

30. Rentola, "Suojelupoliisi Kylmässä Sodassa 1949–1991," pp. 106, 109, 189–190; and Memorandum from Arvo Koli, 18 January 1979, in Amp XXIII A 1, Supo.

enterprises, which formed "a rather tight group" (*melko tiiviin ryhmän*).[31] Companies often operated through trade and sales associations, which negotiated with Soviet authorities. Such large companies and associations had to think about the "big picture;" that is, the need to protect their vital links to both the East and the West. Selling embargoed technology might produce quick profits, but in the era of U.S. technological supremacy it was considerably more important for companies to ensure that the Gulf of Bothnia, which separated Finland and Sweden, did not become "a technology border" with Finland on the wrong side.[32]

Established exporters were represented in the official trade negotiations or were consulted by the government, and hence they could often block attempts by new entrants to gain a substantial foothold in Finnish-Soviet trade.[33] Nevertheless, according to Supo, several smaller enterprises, which did not need to think of the "big picture," managed to sell embargoed goods to the Soviets. The latter also tried to infiltrate various companies, pressured those dependent on Soviet trade to hand over classified items, or even attempted to take over enterprises with the help of local cooperative partners.[34]

The United States, Neutrals, and the Technology Embargo

During the years of détente in the late 1960s and 1970s, the existence of the Western export control system had posed few difficulties for Finnish exporters. Most of the Finnish products that had originally been classified as strategic were removed from Western embargo lists by the late 1950s. Therefore, the United States and its allies had little reason to criticize the Finns.[35] Furthermore, from the late 1950s onward, many companies in the member-states of

31. Åke Wihtol, "Alivaltiosihteeri Åke Wihtolin keskustelut Yhdysvaltain apulaispuolustusministeri Richard Perlen kanssa Helsingissä 20.8.1986," 23 August 1986, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 1. Rauma-Repola Oy:n sukelluspallo- ja nodulilaivaprojektit (tammi–kesäk. 1986), UM.

32. Martti Häikiö, *Nokia: The Inside Story* (Helsinki: Edita, 2002), p. 71.

33. Wihtol, "Alivaltiosihteeri Åke Wihtolin keskustelut Yhdysvaltain apulaispuolustusministeri Richard Perlen kanssa Helsingissä 20.8.1986."

34. Memorandum from Arvo Koli, 18 January 1979, in Amp XXIII A 1, Supo.

35. Kai Somerto, "P. M. Vientiä itäblokin maihin koskevat Yhdysvaltain kieltotavaralistat," 13 September 1958, in Kauppapoliittisen osaston muistiot 1945–1959. Dec 1, UM; and Jensen-Eriksen, "CoCom and Neutrality," p. 57.

the North Atlantic Treaty Organization (NATO) were themselves eager to sell more goods to Communist countries.

The invasion of Afghanistan in December 1979 and new U.S. sanctions changed the situation completely, as Finnish business executives and government officials soon noticed. Many applications submitted by Finnish companies got bogged down in the expanding U.S. bureaucracy.[36] The administration of Ronald Reagan took an even tougher line, and further delays occurred.[37] Republican officials had read the Bucy report carefully, including the sections that highlighted the role of neutrals as possible loopholes in the embargo. The administration made determined efforts to force non-Communist European countries, both allies and neutrals, to tighten their policies on East-West trade. In October 1981, the U.S. Customs Service launched an "Operation Exodus" to clamp down on the smuggling of high technology to the East. By 1983, the operation had 300 full-time agents. The U.S. authorities concluded that technology sold to Western Europe was indeed being diverted to the Soviet bloc. Contemporary public reports suggested that this was often happening through neutral European countries such as Sweden, Switzerland, and Austria.[38]

The Austrians, who received a substantial amount of criticism, were warned by the United States in 1984 that they would be left with only "pastries and 1950s machinery" if they did not tighten re-export controls.[39] In subsequent years, U.S. policymakers put strong pressure on the Austrians, who eventually agreed to tighten their controls.[40] The Swedes had to give in as well. This was not surprising, considering that the Swedish National Board for Civil Emergency Preparedness stated that a U.S. embargo against Sweden would push the small country back into the "horse and carriage" era.[41]

36. Antti Satuli, "Alivaltiosihteeri Rantasen ja va. apulaisulkoministeri Johnstonin keskustelut 21.5.1981," 21 May 1981, in 58B3 Yhdysvallat, Vierailut 1981, UM.

37. Telegram, Finnish Embassy in Washington to Helsinki, 4 March 1981, in 57A Neuvostoliitto, Neuvostoliittoon kohdistuvat taloudelliset pakotteet 1981, UM.

38. "Stemming the Tide," *The Economist*, 17 December 1983, p. 55; and Luif, "Strategic Embargoes and European Neutrals," pp. 176–177.

39. Mastanduno, *Economic Containment*, p. 291.

40. Oliver Rathkolb, "'Austria—Sieve to East': Austria's Neutrality during the East-West Economic War: 1945/8–1989," in Gertrude Enderle-Burcel et al., eds., *Gaps in the Iron Curtain: Economic Relations between Neutral and Socialist Countries in Cold War Europe* (Kraków: Jagiellonian University Press, 2009), pp. 22–23.

41. Ulrika Mörth and Bengt Sundelius, "Dealing with a High Technology Vulnerability Trap: The USA, Sweden and Industry," *Cooperation and Conflict*, Vol. 28, No. 3 (September 1993), p. 306.

Yet disagreements both within the United States and between it and its allies weakened the ability of the Reagan administration to restrict trade. The U.S. Export Administration Act expired in September 1983, and a new act was not adopted until the summer of 1985. The U.S. government also had considerable difficulties in persuading its West European allies to accept new restrictions on East-West trade, although the latter eventually gave in at least in part. The British, for example, concluded there was a "need . . . to find ways and means of meeting, or appearing to meet, American objectives, while resisting those ideas which were damaging and unacceptable."[42] In July 1984, CoCom countries finally reached agreement in principle on controls that applied to computers, software, and telecommunications. In September 1985, they managed to agree on a common policy on other products as well, and they also agreed to coordinate their contacts with non-CoCom countries. These restrictions were not as tough as the Reagan administration had hoped. For example, most personal computers could be freely sold to the Soviet bloc.[43]

In January 1985, President Reagan ordered the U.S. Defense Department to undertake a systematic review of all sales of commercial technology to selected "gray area" countries, including Austria, Finland, Sweden, and Switzerland. However, Section 5(k) of the Export Administration Act of 1985 stipulated that these countries could receive the same treatment as CoCom countries if they introduced comparable restrictions on trade with Communist countries.[44] They would be pre-certified as reliable users and would get technology quickly without the need to acquire individual export licenses. These privileges quickly became known as "Gold Card" status.[45] The State Department was instructed to take the lead in negotiations with the non-CoCom countries in order to establish whether they would be willing to introduce such restrictions. Countries that did not qualify for 5(k) status were placed at a disadvantage in trading with the United States compared to those that did or that were members of CoCom.[46]

42. ODO(SE)(82)2nd Meeting, 1 December 1982, in CAB148/220, TNAUK.

43. "Cocom Compromises," *The Economist*, 21 July 1984, pp. 68–69; Luif, "Strategic Embargoes and European Neutrals," pp. 177–178; and Robert Price, "Cocom after 35 Years: Reaffirmation or Reorganization?" in Charles M. Perry and Robert L. Pfaltzgraff, Jr., eds., *Selling the Rope to Hang Capitalism? The Debate on West-East Trade & Technology Transfer* (Washington, DC: Pergamon-Brassey's International Defense Publishers, 1987), p. 199.

44. Roodbeen, "Trading the Jewel of Great Value," pp. 80–81.

45. Paavo Rantanen, "Teknologian siirto USA:sta Suomeen," 13 September 1986, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä. 2. Keskustelut toukok.1986—tammik. 1987, UM.

46. Mastanduno, *Economic Containment*, p. 293; and Roodbeen, "Trading the Jewel of Great Value," p. 81.

Hostages

The Finnish diplomats decided to do their utmost to keep themselves and their government out of the technological Cold War. From 1980 to 1981, the Finnish embassy in Washington helped a few Finnish companies to acquire necessary export licenses from the U.S. government. When the number of companies requiring assistance increased in the fall of 1981, the embassy asked for and received from the Finnish Ministry for Foreign Affairs authorization to refrain from actively defending the interests of Finnish companies. The embassy was concerned that extensive Finnish diplomatic activity could create an impression that Finland had hidden motives or that the Finnish government might be morally responsible for any violations of U.S. export controls that might occur. The ministry agreed.[47] The Finnish Foreign Service did not want to be involved in anything as controversial as East-West struggles over high technology. If private companies got involved and committed themselves to honoring U.S. restrictions, that was their business and not a reflection of Finnish government policy.[48] The Finnish security police, Supo, was already involved, but it was working in the shadows in its home country.

The Reagan administration was not going to let the Finnish government off the hook so easily, though. In March 1984, when the Finnish armed forces tried to buy night sights for anti-tank missiles from the United States, Richard Perle, an assistant defense secretary and "chief architect of the Reagan administration technology restrictions," as the *Financial Times* called him, linked the purchase of these components to Finnish re-exports of high technology to the Soviet Union.[49] Richard Müller, the Finnish ambassador to Washington, complained that the deal for night sights was being held "hostage" and concluded that the United States had obviously been looking for a pretext to put pressure on the Finns. Perle explained that the Swedish government had agreed to guarantee that classified technology was not re-exported and had given Försvarets materielverk (FMV), an organ of the Swedish Ministry of Defense, the task of monitoring whether industrialists "voluntarily" complied. U.S. export control officials accepted only license applications preapproved by FMV. Perle

47. Pauli Opas, Helsinki, to Jaakko Iloniemi, Washington, DC, 29 October 1981, and Iloniemi to Opas, 2 October 1981, in 58B2 Yhdysvallat/Suomi-Yhdysvallat Kauppa, yl. 1981, UM.

48. See also Leif Fagernäs, "Yhdysvaltain vientivalvonnan vaikutukset Suomessa; Näkökohtia Yhdysvaltain viranomaisten kanssa käydyistä keskusteluista," 12 November 1986, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä. 2. Keskustelut toukok.1986—tammik 1987, UM.

49. David Buchan, "The West Plugs the Hi-Tech Drain," *Financial Times*, 25 July 1984, p. 15.

wanted Finland to adopt a similar system.[50] The Finns were willing to go only so far, but they did decide to tighten controls on transit trade by modifying customs regulations. They also decided to update the lists of controlled armaments exports by including military electronics. "Finland does not want to be 'a loophole' of armaments exports nor does it want that it could be assumed to be one," Åke Wihtol, a leading Finnish diplomat, explained to Perle in August 1986, when the assistant secretary visited Finland. According to Wihtol, these changes were "reflections" (*heijastumaa*) of increased emphasis given to embargo questions.[51]

Secret minutes of Finnish-U.S. discussions, which only recently were declassified, reveal that U.S. officials repeatedly told their Finnish counterparts that no substantial leakages of classified technology via Finland to the Soviet Union had occurred in the mid-1980s.[52] By contrast, in Sweden there had been several highly visible cases.[53]

If U.S. policymakers were not seriously concerned about the flow of U.S. technology through Finland, why did Perle (and later his colleagues) nevertheless put pressure on the Finns? There were several likely reasons for this. First, countries that freely exported technology to the Soviet bloc were a threat to the cohesion of the Western alliance. Perle explained to the Finnish Foreign Ministry in August 1986 that it would be difficult for the United States to get U.S. and European industries as well as allied governments to comply with the new regulations if the Communists could simply switch their purchases to non-CoCom countries.[54] Second, U.S. export control officials believed that, as the CoCom embargo became stricter, the Communists were increasingly directing their attention to neutral countries.[55] Third, once a neutral country had given in to U.S. pressure and acquired "Gold Card" status, others might

50. Müller to Åke Wihtol, Helsinki, 20 March 1984, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 1. Rauma-Repola Oy:n sukelluspallo- ja nodulilaivaprojektit (tammi–kesäk. 1986), UM.

51. Wihtol, "Alivaltiosihteeri Åke Wihtolin keskustelut Yhdysvaltain apulaispuolustusministeri Richard Perlen kanssa Helsingissä 20.8.1986."

52. See, for example, ibid.; Aapo Pölhö, "Rauma-Repolan suunnitteleman vedenalaisen laitteen toimittaminen Neuvostoliittoon; vastaus Yhdysvaltain suurlähetystölle 14.2.1986," 14 February 1986, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 1. Rauma-Repola Oy:n sukelluspallo- ja nodulilaivaprojektit (tammi–kesäk. 1986); and Lauri Korpinen, "Suurlähettiläs Rantasen tapaaminen ulkoministeriön vientivalvonta-asioista vastaavan suurlähettiläs Dean'in kanssa 14.10.1986," 16 October 1986, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä. 2. Keskustelut toukok.1986—tammik. 1987, UM.

53. Mörth and Sundelius, "Dealing with a High Technology Vulnerability Trap," pp. 309–310.

54. Wihtol, "Alivaltiosihteeri Åke Wihtolin keskustelut Yhdysvaltain apulaispuolustusministeri Richard Perlen kanssa Helsingissä 20.8.1986."

55. William Schneider, Jr., "Technology Transfers and U.S. Foreign Policy: Challenges and Opportunities," in Perry and Pfaltzgraff, Jr., eds., *Selling the Rope to Hang Capitalism?*, pp. 85–86; Price,

soon follow. Otherwise, their companies would be in a weaker competitive position.

Nokia's Balancing Act

The U.S. bureaucracy was frustrating for Finnish companies, a fact they did not hide from their own government.[56] But the companies could also work in the shadows. Nokia Oy, a large conglomerate that was Finland's most important exporter of communications equipment and other high-technology goods, is a case in point.[57] Its chief customer in these fields was the Soviet Union. The Soviet telecommunications sector needed upgrading. In 1985, 37 billion intercity phone calls were made in the United States, but only 1.7 billion in the Soviet Union.[58] As late as 1987, Moscow, the Soviet capital, could receive only sixteen simultaneous long-distance phone calls, fewer than a typical apartment building in Manhattan.[59]

Officials on both sides regarded telecommunications networks as components of military command-and-control systems. The United States had upgraded its military telecommunications systems from 1979 onward, even though it was already ahead of the Soviet Union in this sector. It was hardly surprising that Soviet policymakers were eager to improve their systems.[60] The European CoCom members did not fully share U.S. anxieties, and not until 1984 did they agree to restrict telecommunications exports to the East. The United States, in turn, had to agree that these exports would be liberalized in 1988. It was forced to honor this commitment, but exports of manufacturing knowhow remained subject to CoCom restrictions into the early 1990s.[61] Perle pointed out to the Finns that the United States could not easily maintain

"Cocom after 35 Years," p. 199; and Leif Fagernäs, "Yhdysvaltain vientivalvonta; Suurlähettiläs Deanin vierailu 21–23.10.1986," 23 October 1986, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä. 2. Keskustelut toukok.1986—tammik. 1987, UM.

56. Åke Wihtol, *Diplomaatti, minäkö? Epädiplomaattisia episodeja vuosilta 1950–1991* (Jyväskylä, Finland: Gummerus, 1999), pp. 194–195; and Mauno Koivisto, *Historian tekijät: Kaksi Kautta II* (Helsinki: Kirjayhtymä, 1995), p. 207.

57. Harri Luukkanen, *Huipputeknologian ulkomaankauppa Suomessa* (Helsinki: Elinkeinoelämän tutkimuslaitos ETLA, 1984), p. 17.

58. Campbell, *Soviet and Post-Soviet Telecommunications*, p. 15.

59. Anthony Ramirez, "A.T.&T. in Link to Armenia," *The New York Times*, 10 September 1991, p. D1; and Mastanduno, *Economic Containment*, p. 1.

60. Ibid., p. 2 n. 5.

61. Ibid., pp. 2–4; Frank Cain, *Economic Statecraft during the Cold War: European Responses to the US Trade Embargo* (London: Routledge, 2007), pp. 155–157; and "Cocom Compromises," p. 69.

a CoCom embargo on telecommunications equipment if the small Nordic country could freely sell such goods to the USSR.[62]

In the early 1980s, the management of Nokia concluded that U.S. embargo policy had become a substantial potential problem for its trade with the Soviet Union.[63] The company tried to limit the number of U.S. components included in the equipment it sold to Moscow, but it also resorted to extensive diplomatic operations of its own.[64] Kari Kairamo, the head of Nokia (1977–1988), maintained regular contact with both Soviet and U.S. officials. His main Soviet connection was Viktor Vladimirov, a high-ranking KGB officer working in Helsinki, officially as a diplomat. With the help of Vladimirov, who knew countless other leading Finns, Kairamo could bypass the Soviet bureaucracy and get his message through to the highest Soviet leaders. Kairamo organized hunting trips and other social activities with Vladimirov, but also with U.S. officials such as Rockwell Schnabel, the U.S. ambassador to Finland, and Perle. Kairamo was soon on a first-name basis with several key U.S. officials. The Reagan administration wanted assurances that Nokia was not going to re-export classified technology to the Communists. Soviet officials, in turn, were concerned that the Western powers could somehow get access to internal Soviet communications networks through Nokia's equipment. Hence, the U.S. government had to be convinced that Nokia was a trustworthy buyer, and the Soviet government that it was a reliable supplier.[65] After a sailing trip on the Finnish coast in the summer of 1984, Perle wrote a warm thank-you letter to Kairamo and expressed his belief that problems concerning Nokia could be solved in a way that caused minimal damage to the company while also being compatible with the interests of Western defense.[66]

62. Wihtol, "Alivaltiosihteeri Åke Wihtolin keskustelut Yhdysvaltain apulaispuolustusministeri Richard Perlen kanssa Helsingissä 20.8.1986."

63. Nokia board minutes, 18 January 1982 and 29 August 1984, in Archives of Nokia, Espoo, Finland. Extracts supplied by Mikko Hyvarinen, Manager, Records Management, to the author, 1 April 2015.

64. M. Alasaari, "Tilannekatsaus embargo-ongelmista DX 200–tuotteessa," 6 May 1983, in Sakari Salminen's Papers, File: "Telenokia: Neuvostoliiton kauppa ja tuot. yhteistyö 1982–1987," Nokia Oyj, Suomen Elinkeinoelämän Keskusarkisto (Central Archives for Finnish Business Records), Mikkeli, Finland (ELKA).

65. Files: "Ystäviä, tuttavia, kontakteja;" Stephen D. Bryen to Kairamo, 14 March and 22 September 1988; Frank C. Carlucci to Kairamo, 9 August 1988, in Kairamo's Correspondence 1988 A–J; Kairamo to Åke Wihtol and Aimo Pajunen, 13 March 1986, in Kairamo's Correspondence 1984–March 1987 R–Ö, Kari Kairamo's Papers, Nokia Oyj, ELKA; Hannu Moilanen, Ilmoitus No. 1019, 18 August 1985, in Amp XXII L. Supo; Raimo Seppälä, *Stefan Widomski ja Puhelut Moskovaan* (Helsinki: Kustannusosakeyhtiö Otava, 2006), pp. 127, 139, 144, 148–149, 160–161, 163; Matti Saari, *Kari Kairamo: Kohtalona Nokia* (Jyväskylä, Finland: Gummerus, 2000), pp. 108–109; Häikiö, *Nokia*, pp. 70–71; and Stefan Widomski, interview, 20 May 2013.

66. Saari, *Kari Kairamo*, pp. 108–109.

The company appears to have been successful in its efforts. Its sales of communications equipment greatly expanded to the Soviet Union in the 1980s. The most important products in this group were DX200 telephone exchanges, which were sold first to the Soviet Union and later to Western countries. According to Martti Häikiö, trade with the Soviet Union "paved the way for Nokia's success in winning orders for complete communications systems in the West when the markets opened up at the end of the 1980s."[67]

Nokia's dealings with the Soviet Union were not limited just to sales; the company was also involved in joint production ventures. From the U.S. perspective, this was particularly worrying because the United States wanted to limit the transfer of know-how to the Soviet Union. But in practice, the Soviet Union had only a minor role in the production process.[68] A Soviet minister complained in 1987 that the DX200 did not contain even a single Soviet-made screw.[69]

Submersibles

The most severe conflict between Finland and the United States occurred in the mid-1980s, when Rauma-Repola, a Finnish conglomerate and at the time the country's most important exporter, developed a small deep-sea submersible capable of reaching a depth of six kilometers, allowing it to explore most of the ocean floor.[70] The Soviet Union contacted the company in 1983 and asked whether it could build two such submersibles for research purposes for the Soviet Academy of Science. Rauma-Repola and the Soviet authorities also opened talks on construction of a surface ship to be used in deep-sea test mining.[71]

67. Häikiö, *Nokia*, p. 68. The "opening up" of the Western markets was a result of deregulation of the telecommunications sector in West European countries.

68. Mastanduno, *Economic Containment*, p. 2; and Häikiö, *Nokia*, p. 68.

69. Veikko Holmström, "Kari Kairamon neuvottelut Nokossa 24.11.1987 klo 12.00," 2 December 1987, in Sakari Salminen's Papers, File: "Telenokia. Neuvostoliiton kauppa ja tuot. yhteistyö 1982–1987," Nokia Oyj, ELKA.

70. On the Rauma-Repola case, see also Olli Ainola, "Salaista sotaa syvissä vesissä," *Tekniikan historia*, No. 1 (October 2013), pp. 16–22; and *Kauppasotaa pinnan alla*, television documentary by Ari Lehikoinen, Yleisradio, 7 December 2008. Journalist Olli Ainola was the first to study declassified Finnish foreign ministry files on this case.

71. Rauma-Repola, "Memorandum: Deep Sea Research Vessel: Nodule Test Mining Ship," 4 June 1986, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 1. Rauma-Repola Oy:n sukelluspalloja nodulilaivaprojektit (tammi–kesäk. 1986), UM.

Rauma-Repola did not try to hide the project from the United States. The company recognized that it needed to buy components from Western countries, although the use of CoCom-embargoed items could be avoided. Rauma-Repola contacted potential suppliers and also briefed U.S. authorities about the project. Soon after the initial Soviet visit to Rauma-Repola, Tauno Matomäki, the CEO of the company, contacted officials of the U.S. Central Intelligence Agency (CIA) based at the U.S. embassy in Helsinki. The CIA representatives voiced no objections but continued to keep an eye on the project.[72] Rauma-Repola later estimated that his company held roughly a dozen meetings and discussions with CIA personnel in 1984-1986. During this period, the company shared "every conceivable detail" with the U.S. officials, even when they posed some questions that were "commercially intrusive."[73] U.S. officials were eager to know all they could, but they did not seem disturbed. Rauma-Repola planned to build the submersibles from cast, non-alloy steel rather than titanium, as was usually the case. Steel was considerably cheaper, but the U.S. officials implied that it would not be able to withstand the intense pressures six kilometers below the ocean surface. Rauma-Repola had some doubts itself but was willing to take the risk, and it signed the contract for submersibles with the Soviet Union in May 1985.[74] The company briefed the U.S. embassy about this event "within a matter of days."[75]

What the company did not fully understand was that it was also taking a political risk. In February 1986, the U.S. government abruptly changed its position, having sensed that Rauma-Repola could actually follow through on the transfer. U.S. officials seemed confused about the situation. Perle and others acknowledged that communication failures had occurred.[76] "The message . . . never got to the right people," Perle said, by which he meant the Pentagon.[77] A U.S. expert group visited Finland to explain that, with the help

72. Antti Tuuri, *Tauno Matomäki: Suvipäivänä syntynyt* (Helsinki: Kustannusosakeyhtiö Otava, 2005), p. 184.

73. Rauma-Repola, "Memorandum: Deep Sea Research Vessel."

74. Juha-Pekka Kervinen, "Tauno Matomäki: CIA tuhosi Rauma-Repolan parhaan bisneksen," *Metallitekniikka*, Vol. 56, No. 10 (22 October 2003), p. 12.

75. Tuuri, *Tauno Matomäki*, p. 184; and Rauma-Repola, "Memorandum: Deep Sea Research Vessel."

76. A. Potila and Rauma-Repola, "Neuvottelu Pentagonissa 5.6.1986 klo 16.30–17.30," 5 June 1986, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 1. Rauma-Repola Oy:n sukelluspallo- ja nodulilaivaprojektit (tammi–kesäk. 1986), UM; and Paavo Rantanen, *Talviministeri: Diplomatian näyttämöiltä politiikan parrasvaloihin* (Jyväskylä, Finland: Gummerus, 2000), p. 94.

77. Perle to Lieutenant General Aimo Pajunen, Finnish Ministry of Defense, 10 March 1986, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 1. Rauma-Repola Oy:n sukelluspallo- ja nodulilaivaprojektit (tammi–kesäk. 1986), UM; and Jaakko Laajava, "Rauma-Repolan vedenalaisen laitteen toimittaminen Neuvostoliittoon: Valtiosihteeri Wihtolin keskustelut Washingtonissa,"

of such vessels, the Soviet Union could cut Western underwater communications cables; remove surveillance equipment the United States had installed to monitor the movement of Soviet submarines; and install similar devices of its own.[78] U.S. officials gave Finnish President Mauno Koivisto a copy of Tom Clancy's *The Hunt for Red October* (1984), the best-selling novel that describes how the NATO countries installed hundreds of sensitive sonar receptors on the ocean floor to track the movements of Soviet submarines.[79] During a war, these would work as a tripwire to alert NATO of Soviet maritime actions.[80]

The United States asked Rauma-Repola not to deliver the submersibles to the Soviet Union. The company refused to break its contractual obligations and abandon a lucrative project that would probably lead to further orders from the Soviet Union and other countries. From the point of view of the company, the controversy was "caused by the failure over a two-year period of a variety of U.S. Government officials to respond to extensive information about the proposed transaction that was provided consistently by Rauma-Repola in a spirit of openness and cooperation."[81] The CIA officials claimed other companies that had not accepted the CIA's "recommendations" had been forced into bankruptcy. The message was clear: if Rauma-Repola did not comply, it would suffer a similar fate.[82]

Finnish diplomats and industrialists began to fear that the United States and its Western allies might stop the flow of Western technology to Finland and that Finland would be left behind the Iron Curtain in this respect. Such an outcome would have been devastating for the Finnish economy because the Finns needed Western technology and components.[83] These fears proved to be well founded. Schnabel, the U.S. ambassador, told Koivisto that U.S. officials had decided to "freeze" the processing of export license applications

7 November 1986, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä. 2. Keskustelut toukok.1986—tammik. 1987, UM.

78. Aapo Pölhö, "Rauma-Repolan suunnitteleman vedenalaisen laitteen toimitus Neuvostoliittoon; Yhdysvaltalaisen asiantuntijaryhmän käynti Suomessa," 24 March 1986, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 1. Rauma-Repola Oy:n sukelluspallo- ja nodulilaivaprojektit (tammi–kesäk. 1986), UM.

79. Mauno Koivisto, *Witness to History: The Memoirs of Mauno Koivisto: President of Finland 1982–1994*, trans. by Klaus Törnudd (London: Hurst & Company, 1997), p. 86.

80. See in particular the novel's sections on "SOSUS control."

81. Rauma-Repola, "Memorandum: Deep Sea Research Vessel."

82. Kervinen, "Tauno Matomäki," pp. 8–10; and Tuuri, *Tauno Matomäki*, pp. 187–188.

83. Rantanen, *Talviministeri*, p. 92.

for goods destined for Finland. The administrative processes would be halted until the Rauma-Repola case was settled.[84]

Vice President George Bush sent a letter to Koivisto saying that Finland had managed to adapt to the tightening controls on the exports of high technology but that the Rauma-Repola contract was a threat to "global security." Koivisto replied that Rauma-Repola was a private company; therefore, the Finnish government had neither the legal means nor the desire to interfere with its business dealings. Koivisto insisted he was ready to ensure that no embargoed Western technology would be re-exported from Finland to the Soviet bloc, but it was not ready to break the Rauma-Repola contract or to forbid the sale of Finnish technology to the Soviet Union, which would have been difficult to reconcile with the Finnish policy of neutrality and its desire not to upset Moscow. Furthermore, Koivisto believed that many other Western countries were also guilty of violating the embargo.[85]

U.S. pressure on the Finnish government effectively undermined the hands-off policy of the Finnish Foreign Ministry. Many Finnish companies had agreed to honor U.S. export control rules, but this was, according to the ministry, a private matter, even though the Finnish authorities often knew about the arrangements. The ministry had rejected suggestions made by some CoCom members, such as Denmark and West Germany, for intergovernmental treaties or arrangements. The European CoCom countries did not have sufficient weight to sway Finland, but when the U.S. authorities began to apply both economic and political pressure, officials in Helsinki started to waver. In this context, carrots were at least as important as sticks. Ambassador Schnabel explained to his Finnish colleague that if a country wanted "Gold Card" status, an "intergovernmental understanding" was necessary. Finnish authorities had avoided such commitments because they undermined neutrality policies and might provoke Soviet objection, but U.S. officials implied that a bilateral "understanding" did not have to be a formal agreement and could instead be a mere exchange of letters.[86] This was compatible with the Finns' wishes. They preferred, as Kairamo emphasized "personally and as representative of the industry" to "Rock" Schnabel, "open, regular and early contacts

84. Koivisto, *Witness to History*, p. 86.

85. Ibid., pp. 85–87; and Koivisto to Bush, 8 August 1986, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä. 2. Keskustelut toukok.1986—tammik. 1987, UM.

86. Erkki Mäentakainen, "Teknologian siirto USA:sta Suomeen," 25 September 1986; Rantanen, "PM Teknologian siirto USA:sta Suomeen"; and Leif Fagernäs to Åke Wihtol, 8 October 1986, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä. 2. Keskustelut toukok.1986—tammik. 1987, UM.

in all related matters rather than formal agreements," and they hoped there would be no publicity.[87]

U.S. officials eventually accepted that Rauma-Repola would deliver the two submersibles then under construction if their technical performance was downgraded and their delivery delayed, and if no follow-up orders were accepted.[88] In June 1987, a Finnish delegation, including Wihtol, Kairamo, and Matomäki, visited Washington to iron out the final details. Kairamo was at the time also the chairman of the Confederation of Finnish Industries, an influential association that represented the interests of Finland's manufacturing companies. The actual agreement consisted of an exchange of letters between Wihtol and a high-ranking U.S. official as well as "agreed minutes." All documents were carefully worded.[89] The arrangement lacked the formality of a proper formal intergovernmental agreement, which would have directly contradicted the Finnish policy of neutrality, but it was convincing enough to satisfy the U.S. desire to tie Finland to the Western embargo. Wihtol, who had been promoted to state secretary of the ministry (i.e., the highest-ranking civil servant within the institution), had earlier pointed out that the planned arrangement was not legally binding but that, in practice, it had the "same significance."[90] This was good enough for U.S. officials, who felt the effectiveness of the system was more important than the actual form.[91] They did, however, carefully screen all the paperwork that a company wishing to re-export goods had to complete, and in response to their comments Finnish officials made some changes in the wording of these documents.[92]

87. Kairamo to Schnabel, 13 November 1986, in "Ystäviä, tuttavia, kontakteja: Rockwell Schnabel," Kari Kairamo's Papers, Nokia Oyj, ELKA.

88. Aapo Pölhö, "Rauma-Repolan suunnitteleman vedenalaisen laitteen toimitus Neuvostoliittoon, Yhdysvaltain suurlähettilään käynti valtiosihteerin luona 6.5.1987," 7 May 1987, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 3. Understanding'in valmistelut: Suomen non-paper toukok, 1987, UM.

89. The final versions, as well as some of the drafts, can be found in the file Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 4, Understanding, UM.

90. Aapo Pölhö, "Suomen ja Yhdysvaltain väliset keskustelut vientivalvontakysymyksistä; non-paper," 22 May 1987, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 3. Understanding'in valmistelut: Suomen non-paper toukok. 1987, UM.

91. E. Allan Wendt, State Department, to Åke Wihtol, 21 July 1987, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 4. Understanding, UM; and M. Vuoria, "Suomen vientivalvontajärjestelmää koskeneet Yhdysvaltain viranomaisten kysymykset," 30 June 1987, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 5, Understanding, UM.

92. Wendt to Wihtol, 17 June 1987, Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 4. Understanding, UM; and Leif Fagernäs, "Suomen vientivalvontajärjestelmän kehittäminen," 10 June 1987, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 7. Tullia koskevia selvityksiä, UM.

Because the Finnish government had consistently argued that it had no power to control exports of domestic technology, the documents recognized that its role would be limited to "information and consultations" in regard to such sales.[93] In practice, the carefully drafted compromise allocated the most controversial part of the arrangement, the task of prescreening applications and weeding out suspicious ones, to the Confederation of Finnish Industries. The two governments concluded that the organization also formed a "normal channel for the exchange of information on high technology trade, including indigenous Finnish exports" and would "alert the U.S. Embassy as early as possible to potential exports of COCOM-level technology or goods."[94] Yet the Finnish authorities agreed to "take an active role to ensure that the consultations are effective," which showed that they were both indirectly controlling domestic exports and facilitating the transfer of information on them to the U.S. government.[95]

In exchange, Finland got, in practice, the same rights as CoCom member countries in the U.S. export control system.[96] U.S. officials seemed satisfied with the arrangement, and Finland received the coveted 5(k) status.[97] Of all the non-CoCom countries, only Switzerland had received this status before Finland.[98] The Swedes were annoyed and disappointed when they realized they were in a weaker position than the two other neutrals and complained to the U.S. government.[99]

Rauma-Repola built no more submersibles, even though it received further enquiries from various parts of the globe.[100] The Finnish-U.S. arrangements were confidential, but outsiders could not help noticing that the Finnish government carefully monitored exports to the Soviet bloc. For example, two Finnish businessmen were prosecuted and found guilty of treason for having sold to the Soviet Union computer equipment and other

93. Wihtol to Wendt, 30 June 1987, in Suomen ja Yhdysvaltain välillä 4. Understanding, UM.

94. Wendt to Wihtol, 17 June 1987.

95. "Minutes of United States–Finland Consultations Relating to Letter of Understanding on Finnish Export Controls June 16–17, 1987," in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 4. Understanding, UM.

96. Koivisto, *Historian tekijät*, pp. 210–211; and Wihtol, *Diplomaatti, minäkö?*, p. 197.

97. Diary of Paavo Rantanen, 23 June 1987 and 14 July 1987, in Paavo Rantanen's private collection, Helsinki.

98. Mastanduno, *Economic Containment*, pp. 292–293.

99. Jaakko Laajava, Washington, to Wihtol, 10 November 1988, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 6. Understanding'in jälkeistä aineistoa, UM.

100. Tuuri, *Tauno Matomäki*, p. 190.

high-technology items bought from the West.[101] But in the summer of 1991 the Finnish Supreme Court freed them after concluding that a violation of CoCom export controls was not treason. Finland had not, according to the court, committed to the organization's regulations. The businessmen did, however, have to pay fines for a violation of Finnish export regulations.[102] By this time, the U.S. government had probably gotten the message: the Finnish authorities were determined to ensure that confidential technology was not re-exported from Finland.

The Rauma-Repola case was successfully kept out of the public eye.[103] Finnish officials and industrialists were satisfied that the controversial question had been solved and that it had been handled without publicity. The company stated to the press that production had ceased because of a lack of orders. In private, Matomäki was disappointed. He believed that deep-sea technology could have become a major field of business for Rauma-Repola.[104] After the Cold War, the two *Mirs* sold to the USSR were used, for example, to photograph or study the wrecks of the *Titanic*, the German battleship *Bismarck*, and the Russian nuclear submarine *Kursk*. In addition to *MIR-1* and *MIR-2*, only a few manned vessels in the world today can dive below 3,000 meters.

The U.S. Department of Defense got what it wanted. Finnish export controls were strengthened, and one potential channel of technology to the Soviet Union was closed—although "potential" is the key word here insofar as the channel had never been fully open. Finland, an officially neutral country, had been incorporated into the Western embargo, which was a significant part of the alliance system of the "Free World." The Finns had a reason to be pleased as well. They could buy U.S. technology as easily as the West European CoCom countries. Ties with the West had been strengthened at the expense of Finland's powerful eastern neighbor, but the appearance of Finnish neutrality was maintained. There were no official declarations or public agreements that would have harmed its credibility. Finnish authorities and industrialists were at this time making serious efforts to strengthen their economic and institutional links with Western Europe, which might well have increased their willingness to cooperate with Western export control authorities. Kairamo was

101. "Huipputekniikan viejille ehdottomat vankeustuomiot maanpetoksesta," *Kauppalehti*, 17 March 1989, p. 12; and Paavo Rantanen, interview, in Helsinki, 4 March 2005.

102. Susanna Reinboth, "KKO hylkäsi maanpetossyytteet," *Helsingin Sanomat*, 5 June 1991, p. A5.

103. Rantanen, *Talviministeri*, pp. 95–96.

104. Kervinen, "Tauno Matomäki," pp. 6–8.

one of the strongest proponents of the "Europeanization" of Finland; that is, its integration with the Western half of the continent.[105]

When some observers argued that Finland could be classified as "an associate member" of CoCom, the Finnish Foreign Ministry publicly rejected the description and emphasized that no official ties existed between CoCom and Finland.[106] This was true, strictly speaking, but in practice Finland had been incorporated into the system. Finnish licensing authorities quietly rejected applications that violated CoCom rules, customs officials checked that only lawful merchandise crossed the border, the Bank of Finland monitored suspicions transactions, and the Finnish security police kept an eye on traders operating in the shadows.[107] Private actors were integrated into the system as well: Finnish licensing authorities sent export applications to the Confederation of Finnish Industries, whose staff analyzed whether they contained CoCom-controlled technology.[108]

Conclusion: Pitching a Tent in the West European Camp

David Engerman argues in *The Cambridge History of the Cold War* (2010) that the "story of the Cold War was the story of boundaries, establishing the outer limits of each sphere of influence and competing for those who had not yet pitched their tents in one camp or the other."[109] Neutral European countries such as Finland, Austria, and Sweden never officially "pitched their tents" in either of the two camps. Yet the superpowers did not allow them to stay out of the conflict. The United States tried to integrate neutral countries into the Western technological containment system, whereas the Soviet Union tried to acquire sensitive items and know-how from them by both open and secret means.

105. Häikiö, *Nokia*, p. 75.

106. Merja Heinonen, "Suomi ja CoCom," *Kauppalehti*, 20 July 1989, p. 7.

107. Leif Fagernäs, "Vientivalvonta," 2 April 1987, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 3. Understanding'in valmistelut: Suomen non-paper toukok, 1987, UM; and Memorandum from Leif Fagernäs, 18 March 1987, in Vientivalvontakysymys Suomen ja Yhdysvaltain välillä 3. Understanding'in valmistelut: Suomen non-paper toukok, 1987, UM.

108. Correspondence on the monitoring has survived in the archives of the confederation as "unnumbered" correspondence with the Finnish Licensing Office (Lisenssivirasto). See Files 109, 120–122, Teollisuuden Keskusliitto, TKL, ELKA.

109. David C. Engerman, "Ideology and the Origins of the Cold War, 1917–1962," in Leffler and Westad, eds., *The Cambridge History of Cold War*, Vol. 1, p. 33.

One might be tempted at first glance to conclude that Finnish leaders rejected U.S. efforts. After all, they often practiced a form of self-censorship in public and refused to criticize Soviet actions and policies. However, recently declassified materials indicate that Finland worked hard to restrict the flow of classified technology to the Soviet Union. Finnish export controls may even have been more effective than those of Sweden or Austria. In some ways, the Finns did choose their side. The Finnish business sector needed Western technology and was eager to strengthen relations with Western Europe. The Soviet Union was a vital market for Finns, but an aspiring high-technology country like Finland could not rely on its increasingly backward Communist neighbor. The Third Industrial Revolution was under way, and the Soviet Union was falling ever further behind the United States.

Behind the scenes, the Finns were practicing their own containment policy. They employed administrative systems and other inconspicuous methods to regulate trade. Confidence-building measures such as day-to-day cooperation with Western authorities strengthened U.S. officials' belief that Finland was not as "Finlandized" as was often assumed in the West and that the United States should adopt a more positive policy toward it. The Soviet Union could not prevent this cooperation, lacking the means to compel the Finns to submit. The use of military force against a neutral European country would have been hard, especially in the age of glasnost and perestroika, and economic sanctions would probably have been unwise. The Soviet Union needed the items and equipment it was allowed to buy from or via Finland. Soviet officials wanted to acquire more, but what they got was better than nothing.

It is always difficult for small countries to stay out of major international conflicts. The experience of the European neutrals suggests that remaining entirely neutral in the technological Cold War was infeasible. Countries that wanted to enjoy the benefits of an integrated and innovative capitalist world economy had to cooperate with CoCom countries in restricting the flow of sensitive technologies to the Soviet bloc. The economic price that countries such as Finland had to pay for this cooperation was not necessarily high, but many of their actions clearly did not fit well—or, in some cases, at all—with the strict definition of neutrality.